

KS
EXHIBIT “1”

Solar PV cost reduction opportunities, excerpted from NREL ATB.

Source: NREL (National Renewable Energy Laboratory). 2019. *2019 Annual Technology Baseline*. Golden, CO: National Renewable Energy Laboratory. <https://atb.nrel.gov/electricity/2019>; Utility-scale PV tab.

- Modules
 - Increased module efficiencies and increased production-line throughput to decrease CAPEX; overhead costs on a per-kilowatt basis will go down if efficiency and throughput improvement are realized
 - Reduced wafer thickness or the thickness of thin-film semiconductor layers
 - Development of new semiconductor materials
 - Development of larger manufacturing facilities in low-cost regions
- Balance of system (BOS)
 - Increased module efficiency, reducing the size of the installation
 - Development of racking systems that enhance energy production or require less robust engineering
 - Integration of racking or mounting components in modules
 - Reduction of supply chain complexity and cost
 - Creation of standard packaged system design
 - Improvement of supply chains for BOS components in modules
- Improved power electronics
 - Improvement of inverter prices and performance, possibly by integrating microinverters
- Decreased installation costs and margins
 - Reduction of supply chain margins (e.g., profit and overhead charged by suppliers, manufacturer, distributors, and retailers); this will likely occur naturally as the U.S. PV industry grows and matures
 - Streamlining of installation practices through improved workforce development and training and developing standardized PV hardware
 - Expansion of access to a range of innovative financing approaches and business models
 - Development of best practices for permitting interconnection and PV installation such as subdivision regulations, new construction guidelines, and design requirements.

KS
EXHIBIT “2”

Table 1: Total Cost Results (in \$1000)

	<u>\$0/ton CO2</u>			<u>\$25/ton CO2</u>		
	Low Gas	Base Gas	High Gas	Low Gas	Base Gas	High Gas
RP1	\$1,397,881	\$1,470,469	\$1,622,415	\$1,619,829	\$1,693,271	\$1,870,416
RP2	\$1,389,066	\$1,461,624	\$1,612,190	\$1,618,734	\$1,693,466	\$1,868,087
RP3	\$1,391,707	\$1,467,950	\$1,634,829	\$1,602,660	\$1,679,692	\$1,863,611
RP4	\$1,400,022	\$1,470,534	\$1,621,990	\$1,630,314	\$1,704,266	\$1,879,853
RP5	\$1,426,530	\$1,496,382	\$1,643,927	\$1,641,254	\$1,711,419	\$1,884,746
RP6	\$1,413,238	\$1,483,088	\$1,629,308	\$1,633,673	\$1,705,055	\$1,877,619
RP7	\$1,397,653	\$1,467,541	\$1,613,882	\$1,617,654	\$1,689,211	\$1,862,973
RP8	\$1,427,213	\$1,508,126	\$1,700,900	\$1,601,430	\$1,680,729	\$1,880,379
RP1-H	\$1,388,402	\$1,458,548	\$1,607,686	\$1,605,346	\$1,676,376	\$1,851,247
RP2-H	\$1,379,551	\$1,450,487	\$1,598,935	\$1,602,038	\$1,674,410	\$1,849,748
RP3-H	\$1,382,137	\$1,455,818	\$1,619,997	\$1,587,640	\$1,661,713	\$1,843,850
RP4-H	\$1,405,684	\$1,473,978	\$1,620,727	\$1,628,987	\$1,699,312	\$1,869,729
RP5-H	\$1,418,921	\$1,486,602	\$1,629,465	\$1,627,946	\$1,696,393	\$1,865,749
RP6-H	\$1,404,063	\$1,472,422	\$1,615,795	\$1,617,921	\$1,687,168	\$1,858,512
RP7-H	\$1,394,497	\$1,462,047	\$1,604,954	\$1,608,252	\$1,677,727	\$1,847,434
RP8-H	\$1,421,639	\$1,500,477	\$1,688,667	\$1,591,521	\$1,669,144	\$1,863,823
RP1-L	\$1,403,707	\$1,478,216	\$1,634,876	\$1,628,694	\$1,705,402	\$1,887,412
RP2-L	\$1,390,508	\$1,464,172	\$1,618,356	\$1,624,249	\$1,701,205	\$1,881,921
RP3-L	\$1,390,784	\$1,468,308	\$1,639,268	\$1,606,791	\$1,685,469	\$1,873,937
RP4-L	\$1,415,912	\$1,487,174	\$1,640,400	\$1,651,214	\$1,727,339	\$1,902,263
RP5-L	\$1,429,636	\$1,500,544	\$1,650,943	\$1,647,671	\$1,720,163	\$1,895,594
RP6-L	\$1,413,589	\$1,486,136	\$1,635,641	\$1,638,858	\$1,713,899	\$1,890,321
RP7-L	\$1,403,663	\$1,474,717	\$1,623,625	\$1,629,328	\$1,702,969	\$1,877,627
RP8-L	\$1,437,520	\$1,519,550	\$1,716,437	\$1,616,809	\$1,697,297	\$1,901,681

Table 2: Total Cost Ranks

	<u>\$0/ton CO2</u>			<u>\$25/ton CO2</u>		
	Low Gas	Base Gas	High Gas	Low Gas	Base Gas	High Gas
RP1	10	10	11	13	11	12
RP2	4	4	4	12	12	10
RP3	7	8	15	5	6	7
RP4	11	11	10	19	18	16
RP5	21	20	20	22	21	19
RP6	16	16	13	20	19	14
RP7	9	7	5	10	10	6
RP8	22	23	23	3	7	17
RP1-H	3	3	3	6	4	4
RP2-H	1	1	1	4	3	3
RP3-H	2	2	8	1	1	1
RP4-H	15	13	9	17	15	11
RP5-H	19	18	14	15	13	9
RP6-H	14	12	6	11	9	5
RP7-H	8	5	2	8	5	2
RP8-H	20	21	22	2	2	8
RP1-L	13	15	16	16	20	20
RP2-L	5	6	7	14	16	18
RP3-L	6	9	18	7	8	13
RP4-L	18	19	19	24	24	24
RP5-L	23	22	21	23	23	22
RP6-L	17	17	17	21	22	21
RP7-L	12	14	12	18	17	15
RP8-L	24	24	24	9	14	23

Table 3: Range (in \$1000) and Ranks

	Range	Rank
RP8-H	\$442,184	1
RP5-H	\$446,828	2
RP7-H	\$452,937	3
RP8	\$453,166	4
RP6-H	\$454,449	5
RP5	\$458,216	6
RP3-H	\$461,713	7
RP1-H	\$462,845	8
RP4-H	\$464,045	9
RP8-L	\$464,161	10
RP6	\$464,381	11
RP7	\$465,320	12
RP5-L	\$465,958	13
RP2-H	\$470,197	14
RP3	\$471,904	15
RP1	\$472,535	16
RP7-L	\$473,964	17
RP6-L	\$476,732	18
RP2	\$479,021	19
RP4	\$479,831	20
RP3-L	\$483,153	21
RP1-L	\$483,705	22
RP4-L	\$486,351	23
RP2-L	\$491,413	24

Table 4: Max Regret (in \$1000) and Ranks

	Max Regret	Rank
RP2-H	\$14,398	1
RP1-H	\$17,706	2
RP7-H	\$20,612	3
RP3-H	\$21,062	4
RP7	\$30,014	5
RP6-H	\$30,281	6
RP2	\$31,753	7
RP1	\$32,189	8
RP3	\$35,894	9
RP2-L	\$39,492	10
RP5-H	\$40,306	11
RP3-L	\$40,333	12
RP4-H	\$41,347	13
RP7-L	\$41,688	14
RP4	\$42,674	15
RP1-L	\$43,689	16
RP6	\$46,033	17
RP6-L	\$52,186	18
RP5	\$53,614	19
RP5-L	\$60,031	20
RP4-L	\$65,626	21
RP8-H	\$89,732	22
RP8	\$101,965	23
RP8-L	\$117,502	24